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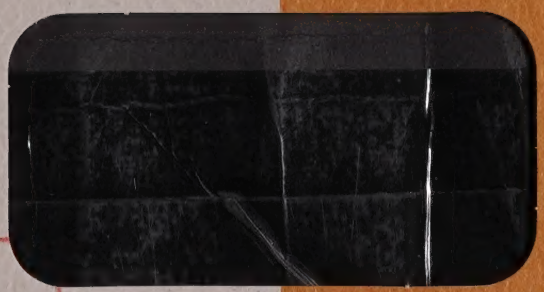
AERONUTRONIC DIVISION

POWER SUPPLY



PROPERTY OF
AERONUTRONIC
METROLOGY
LABORATORY
REC'D

INSTRUCTION MANUAL

KEPCO INC.®
131-38 SANFORD AVENUE • FLUSHING, N. Y. 11352
Area Code 212 IN 1-7000 • TWX # 212-539-6623

TEST EQUIP. MAINT.

SERIES CONNECTION

Kepco Voltage Regulated Power Supplies can be connected in series for increased voltage, provided the specified limits on the voltage to chassis are not exceeded. When series connected, supplies should be protected by means of a semiconductor diode, reverse-connected across the output terminals of each power supply. The peak reverse voltage (PRV) rating of this diode should be chosen to be at least as large as the voltage rating of the supply to which it is connected. The forward (continuous) current rating of the diode should be capable of carrying the largest short circuit current of the series inter-connected supplies.

INSTRUCTION MANUAL

VOLTAGE REGULATED
POWER SUPPLY

MODEL PR 40-50A (M)

SERIAL NO.....

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REPLACEMENT PARTS

SCHEMATIC DIAGRAM

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KEPCO, INC.

VOLTAGE REGULATED POWER SUPPLY

1-1 DESCRIPTION AND SPECIFICATIONS — MODEL PR 40-50A (M)

....DESCRIPTION: The Model PR 40-50A (M) is a medium power, high current, regulated DC power supply. It operates on three-phase power; and has adjustable output voltage, continuous duty current rating and forced-air internal cooling. Basic primary and output overload protection is afforded, which provides for shutdown in the event of overloading.

....DC OUTPUT: 0.1 to 40 volts, at 0 to 50 amperes; output voltage continuously adjustable.

....AC INPUT REQUIREMENTS: 208 or 230 volts, 60 cps, 3 phase wire, 9 amperes (max.) at 208 volts, 2800 watts. Voltage ± 10%, frequency ± 1 cps. (See Section 2-1, AC Power Connection.)

Note: Percent changes in line frequency produce approximately equal percent changes in output voltage, linearly within stated input frequency tolerance.

....LINE REGULATION: ± 2% for line variations of ± 10% at either 208 or 230 volts, at maximum rated output voltage and current.

....LOAD REGULATION: Specified at maximum rated output voltage.
Less than 1% for a change in load current from full-load to half-load.
Less than 2% for a change in load current from full-load to quarter-load.

....RIPPLE: Less than 2% rms at maximum rated output voltage.

....AMBIENT OPERATING TEMPERATURE: -20°C to +55°C.

....STORAGE TEMPERATURE: -40°C to +85°C.

....DIMENSIONS: Height 8-3/4 in.; Width 19 in.; Depth 20 in. behind panel.

....COLOR: Kepco Standard Gray Hammertone.

....WEIGHT: Approximately 250 pounds.

....MOUNTING: Standard rack, or bench.

....METERS: (On Models with suffix "M" on Model number)

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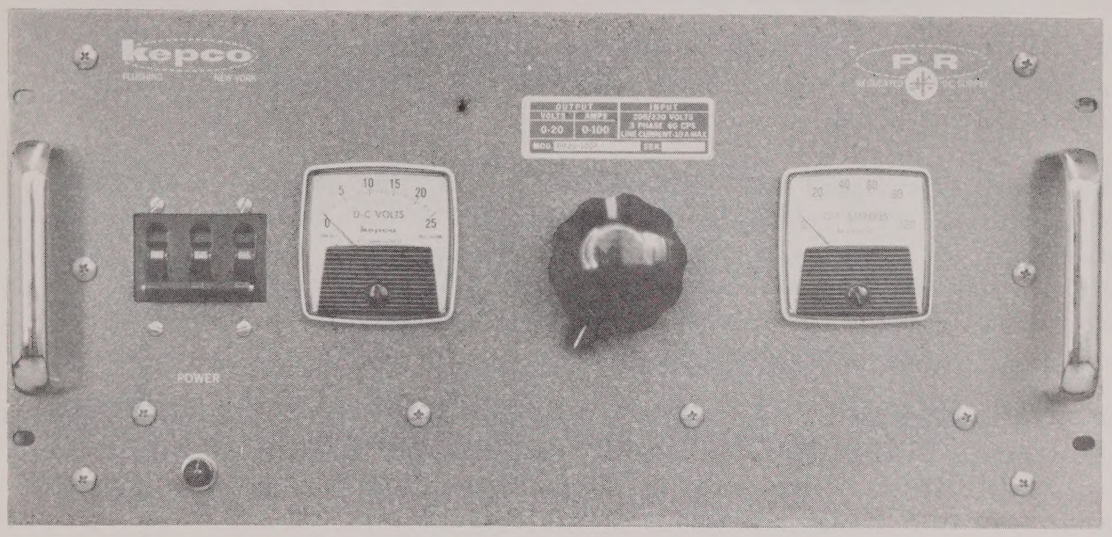


Typical Front View of 3 Phase PRA Models

1.2 TERMINALS AND CONTROLS

....ON FRONT PANEL:

POWER ON-OFF, DC OVERLOAD BREAKER SWITCH. - Three pole common trip toggle type breaker switch, for turning power on for starting, and for shutting the unit off. DC overload, or internal fault, operates breaker to shut power off.

DC VOLTAGE CONTROL. - Continuously variable control for setting the output voltage.

ON INDICATOR. - Pilot light indicates when power is turned on.

....ON BACK OF UNIT:

DC OUTPUT LOAD TERMINALS. - Heavy duty cable type connectors for connecting the load conductors. Adjoining ground stud facilit[illegible] connecting one side of the DC voltage to chassis ground.

2-1 GENERAL OPERATING INSTRUCTIONS

INSTALLATION. - The PR Power Supply has been completely inspected and tested at the factory prior to packing, and is shipped ready for installation and operation.

The Supply is equipped with pull handles on the front panel. In addition, it is equipped with removable carrying handles on each side, and removable steel skid rails on the bottom to facilitate handling. These may be left in place for bench operation, or can be removed if they interfere with rack installation. If removed, it is suggested that they be stored for re-use should the Supply need to be relocated.

AC POWER CONNECTION. - The Supply is equipped with a four-wire, safety ground, linecord for connection to AC power. The line cord is terminated in a twist lock plug. If it is necessary to remove or change this plug, note that the Green lead is a ground connection to the chassis.

AC INPUT VOLTAGE. - The unit is designed for operation on either 208 or 230 volt input. Each of the three phases of the input to the transformers must be connected either to the 208 or 230 volt tap on the primary of the three power transformers, depending on which voltage is available. Before installing the power connections be sure to check the type and the voltage of the power line. The Supply is shipped with the input taps connected for 208 volt operation. These taps are labelled on the underside of the chassis, and the procedure for changing the input between 208 and 230 volts is as follows:

Remove the bottom cover on the chassis. Locate the primary terminals of each of the three transformers. The primary terminals on each transformer consist of three terminals, two of which are #10 brass stud with hex-nuts, labelled 208 and 230, and the third a solder stud labelled Common. On each, move the heavy wire that is connected by solder lug, to either the 208 or 230 terminal. It is suggested that as part of the procedure when changing the taps, that the equipment be labelled in some way, near the linecord, to indicate which voltage the input is connected for.

DC LOAD CONNECTIONS. - Connect the load to the two cable type terminals on the back of the unit. Use the largest wire size consistent with operating current, terminal size and lead length. The terminals will accept up to #1 wire size.

DC GROUND. - The DC output is isolated from the AC power line, and isolated internally from any connection to chassis or ground. This allows either side of the DC to be connected to ground. A grounding terminal, located between the DC load terminals and connected to chassis, has a movable link for grounding one side of the output.

COOLING. - Ventilation is provided by a built in fan assembly which circulates air laterally through the unit. When the Supply is in operation, make certain the side panel openings are clear and not blocked.

2.2 PROTECTIVE CIRCUIT DESCRIPTION.

An overload failure occurring generally in any part of the output circuit, between the output of any one of the three variable transformers and the load, will be detected in the DC overload coil of CB101 which will trip the Power switch to Off, shutting off the Supply. In addition to protection in the event of a short-circuit at the load, protection is provided in the event of a shorted output capacitor, or a short-circuited diode on any phase, in the bridge rectifier. The other two coils of CB101 are located in two primary legs, and will actuate the breaker for any condition that causes abnormal primary current to flow.

SERIES, PARALLEL OPERATION. - The output of two or more PR Models may be connected in series, up to a maximum condition of potential between chassis and either output terminal not to exceed 400 volts.

The output of two or more PR Models may be connected in parallel for higher current requirements. It is necessary to carefully adjust the voltage control of each Supply for equal current from each unit.

MAINTENANCE. - Conservatively rated components assure a long trouble free operating life. Under normal operating conditions, no mechanical maintenance of any kind should be required. The fan unit is permanently lubricated by the manufacturer and should not require subsequent lubrication. An occasional careful brushing or dusting of the interior to remove any accumulations of dust is suggested.

FACTORY SERVICE. - If it becomes necessary or desirable to return this equipment to KEPCO for repair, it should not be shipped to the factory without prior authorization and shipping instructions. The inclusion of detailed information with the unit, or in correspondence prior to its return, will greatly expedite the completion of repair work and return of the unit to the sender. In any correspondence to the factory about this Power Supply, the Model and Serial number should always be included.

kepco inc. ® REPLACEMENT PARTS LIST

POWER SUPPLY MODEL PR 40-50AM Code 8-1064

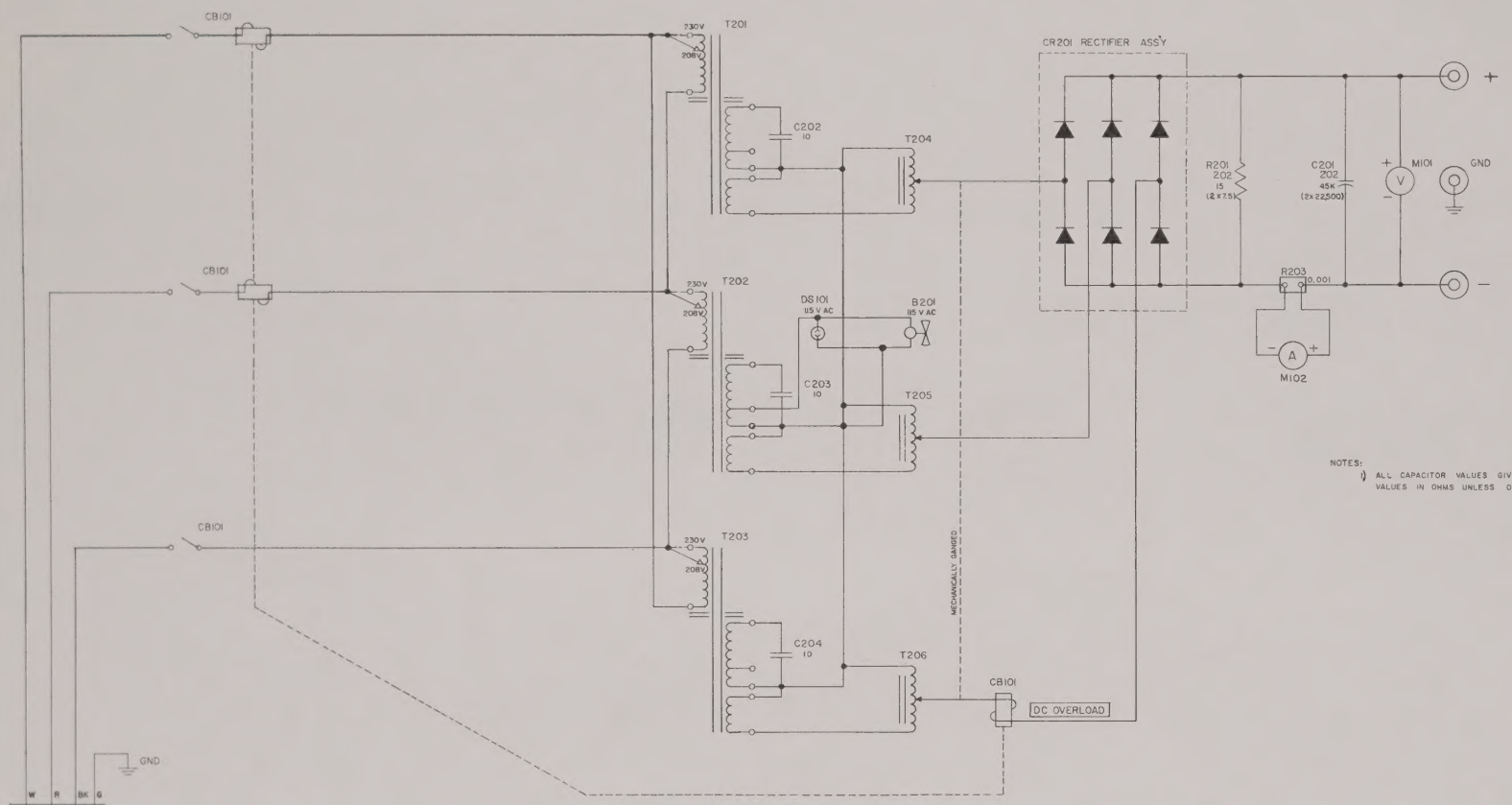
SCHEMATIC NO.	QTY.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)	KEPCO PART NO.
B201	1	Muffin Fan	Rotron Mfg. Muffin Fan	149-0013
C201, 202	2	Capacitor, Electrolytic, Can Type 22,500 μf, 55 v	General Electric 43F1736CA3	117-0336
C203-205	3	Capacitor, Paper, Can Type 10 μf, 660 v	General Electric 49F3382	117-0355
CB101	1	Circuit Breaker, 3 Pole Common 10/10/45A, 250 v AC Trip	Heinemann Electric AM336-10-250-5 with 45a. RT	127-0189
CR201	1	Rectifier Assembly (Stack Type) Includes the Following:	Kepco Inc.	124-0216
	3	Rectifier, Silicon, Stud Type	Motorola 1N3210	124-0165
	3	Rectifier, Silicon, Stud Type	Motorola 1N3210R	124-0166
DS101	1	Pilot Light Assembly	Industrial Devices Type A, PG 500	152-0072
*M101	1	Meter, Volt 0-50 v, DC	General Electric 8DW91V201AR2	135-0138
*M102	1	Meter, Amp 0-50 v, DC, 50 mv	General Electric 8DW91A326CR2	135-0186
R201, 202	2	Resistor, Fixed, Power, Strip 7.5 ohm, 65 w, 5%	Hardwick Hindle 4 3/4BR-35-7.5-5%	115-1202
R203	1	Resistor, Ammeter, Shunt 50 A, 50 mv	Kepco Inc.	115-1662
T201-203	3	Transformer, Flux-O-Tran	Kepco Magnetics	100-1401
T204-206	3	Powerstat	Superior Electric Q116-1026	175-0420

*Metered Models only.

REPLACEMENT PARTS MAY BE ORDERED FROM KEPCO, INC. ORDERS SHOULD INCLUDE KEPCO PART NUMBER AND DESCRIPTION.

PLEASE NOTE: THE MANUFACTURER'S NAME AND PART NUMBER LISTED FOR EACH ITEM ON REPLACEMENT PARTS LISTS, REPRESENTS AT LEAST ONE SOURCE FOR THAT ITEM AND IS LISTED SOLELY FOR THE CONVENIENCE OF KEPCO EQUIPMENT OWNERS IN OBTAINING REPLACEMENT PARTS LOCALLY. WE RESERVE THE RIGHT TO USE EQUIVALENT ITEMS FROM ALTERNATE SOURCES KEPCO, INC.

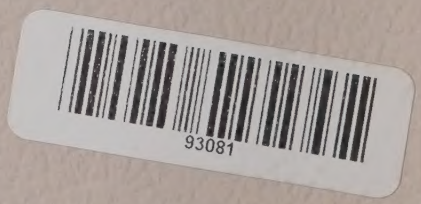
DM03900



NOTES:

1) ALL CAPACITOR VALUES GIVEN IN MICROFARADS, RESISTOR VALUES IN OHMS UNLESS OTHERWISE NOTED.

KEPCO INC. FLUSHING, N.Y.			
TITLE: SCHEMATIC			
DRAWN: N. HUGHES	CHECKED: D. S.	APPROVED:	DATE: 3-19-64
MODEL NO: PR 40-50AM		PART NO.	SCALE
DWG. NO. DM03900			



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